$$\mathbf{Y}_i^{\text{sim}(k)*} = \text{var}(\mathbf{Y}_i)^{-1/2}(\mathbf{Y}_i^{\text{sim}(k)} - E(\mathbf{Y}_i))$$

$$\mathbf{Y}_i^{*} = \text{var}(\mathbf{Y}_i)^{-1/2}(\mathbf{Y}_i - E(\mathbf{Y}_i))$$

$$\text{pde}_{ij} = F_{ij}^{*}(y_{ij}^{*}) \approx \frac{1}{K}\sum_{k=1}^{K}\delta_{ijk}^{*}$$

where $\delta_{ijk}^{*} = 1$ if $y_{ij}^{\text{sim}(k)*} < y_{ij}^{*}$ and 0 otherwise.